On the other hand, the general form of the animal, the manner of walking, and habitation of the genus *Assiminia* are so like those of some of the smaller species of *Littorina* (which Dr. Leach named *Sabancæa*), that if it was not for the peculiar position of the eye on its long pedicel I should have been inclined to have considered it as a subdivision of that genus, with very short tentacles and elongated eye-peduncles. But Mr. Berkeley's observations have set that at rest, as well as the distinction between it and *Truncatella*; for he shows that *Assiminia* has lungs like *Cyclostoma*, or rather *Helicina*, while the *Littorinæ* and *Truncatellæ* have well-developed gills for respiration, like the greater part of the marine genera; but the gills of *Littorina* and *Truncatella* are very unlike one another, the gills of the former being broad, short, laminar, and of the latter, single, ovate, and pectinate.

P.S.—Messrs. H. and A. Adams, in the number of their work issued since this paper was read, are so impressed with the peculiarity of the combination of characters that the animal presents, viz. a pulmonary respiration, spiral operculum, and terminal eyes, that they have formed for the genus a suborder named *Prosophthalma*, and a particular family, *Assiminiadæ*: see Genera of Mollusca, 313.

MISCELLANEOUS.

ON CLAUSILIA ROLPHII AND MORTILLETI.

I HAVE lately received the first part of Adolf Schmidt's 'Kritischen Gruppen der Europäischen Clausilien,' containing the groups allied, severally, to *Cl. ventricosa*, Dr., *plicatula*, Dr., *rugosa*, Dr., and to the true *gracilis*, Rossm., and placing *Cl. ventricosa*, *Rolphii*, Leach, and *tumida*, Ziegl., in the first group, while *lineolata*, Held, *plicatula*, &c. are assigned to the second.

I am also indebted to Mr. Woodward for a further supply of *Clausiliæ* found by Mr. Sharman at Charlton in Kent. These all prove to be of the form found by Mr. Prentice at Charlton Kings near Cheltenham, and assigned by A. Schmidt to *Cl. Mortilleti*, Dumont. Early in June I called M. Schmidt's attention to the fact of his having altogether ignored *Cl. Rolphii*, as a substantive species, in the Prodromus published in the 'Malak. Blätter' of the present year. It now appears that, after some doubt whether Gray's description did not apply to *Cl. lineolata*, he had finally arrived at the conclusion that the plate presented a better outline of the form of the shell to which he had referred under the name of *Mortilleti*, and which he had received from Mr. Prentice, through his brother, from England, where *Cl. lineolata* had not been detected. *Clausilia Rolphii* therefore appears as a substantive species, with *Cl. Mortilleti* as a synonym.

On a review of the single large specimen first received from Mr. Woodward, and which I regarded as the type of *Cl. Rolphii* (Annals for July 1856, page 75), and on further examination of A. Schmidt's amended characters, remarks and figure, I am disposed

to consider the two Woolwich forms as being variations of *Rolphii*; the peculiar form of the subcolumellar plica, and other characters, not admitting of the union of either with any other allied species. The specimen formerly in question must for the present be considered as a large and unusual variety, or accidental deviation from the general type of *Cl. Rolphii*. This deviation is particularly observable in the form of the spire, in the less-developed basal crest, and in the more narrowly rimate and contracted periomphalus. There is also no trace of the slight palatal callus, vanishing towards the base, which is observable in the ordinary form found in other English localities and on the continent.—W. H. Benson.

On the Origin of Greensand, and its Formation in the Oceans of the present Epoch. By Prof. J. W. Bailey.

As an introduction to the subject of this paper, it is proper to refer to various observations which have been made of facts intimately related to those which I wish to present. That the calcareous shells of the Polythalamia are sometimes replaced by silica, appears to have been first noticed by Ehrenberg, who, in a note translated by Mr. Weaver, and published in the Philosophical Magazine for 1841 (vol. xviii. p. 397), says:—

"I may here remark that my continued researches on the Polythalamia of the Chalk have convinced me that very frequently in the earthy coating of flints, which is partly calcareous and partly siliceous, the original calcareous-shelled animal forms have exchanged their lime for silex without undergoing any alteration in figure, so that while some are readily dissolved by an acid, others remain insoluble; but in chalk itself, all similar forms are immediately dissolved."

The first notice of *casts* of the cells and soft parts of the Polythalamia was published by myself in the 'American Journal of Science' for 1845, vol. xlviii., where I stated as follows:—

"The specimens from Fort Washington presented me with what I believe have never been before noticed, viz. distinct *casts* of Polythalamia. That these minute and perishable shells should, when destroyed by chemical changes, ever leave behind them indestructible memorials of their existence, was scarcely to be expected, yet these casts of Polythalamia are abundant and easily to be recognized in some of the Eocene marls from Fort Washington." This notice was accompanied by figures of well-defined casts of Polythalamia (*l. c.* pl. 4. fig. 30, 31).

Dr. Mantell also noticed the occurrence of casts of Polythalamia and their soft parts preserved in flint and chalk, and communicated an account of them to the Royal Society of London, in May 1846. In this paper he speaks of the chambers of Polythalamia as being frequently filled with chalk, flint, and *silicate of iron* (Phil. Trans. 1846, p. 466). To Ehrenberg, however, appears to be due the credit of first distinctly announcing the connexion between the Polythalamia and the formation of greensand, thus throwing the first light upon the origin of a substance which has long been a puzzle to